Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.80

Product:	3021111 - X-Stream PP Reducer BK 300x160 PVC
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

Wavin X-Stream is a new generation of double-walled pipes and □ttings made of polypropylene. The system is

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	08-06-2023
End of validity:	08-06-2028
Verifier:	Martijn van Hövell - SGS Search

This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin - PL -Buk - Extra products (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

Construction process stage

A4 Transport gate to site
A5 Assembly / Construction installation process

Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment
B6 Operational energy use B7 Operational water use

End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing
C4 Disposal

Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

Environmental impacts and parameters

GWP-total = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

Statement of Confidentiality

Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.15E+0	2.03E-1	4.28E-2	4.40E+0	9.36E-2	7.06E+0	4.41E-2	-4.84E+0	6.76E+0
GWP-f	kg CO2 eq	8.39E+0	2.03E-1	4.32E-2	8.64E+0	9.35E-2	2.77E+0	4.41E-2	-4.82E+0	6.72E+0
GWP-b	kg CO2 eq	-4.24E+0	1.23E-4	-4.56E-4	-4.24E+0	5.68E-5	4.30E+0	3.85E-5	-1.53E-2	4.14E-2
GWP-luluc	kg CO2 eq	4.33E-3	7.19E-5	4.41E-5	4.45E-3	3.31E-5	5.36E-4	7.44E-7	-2.64E-3	2.38E-3
ODP	kg CFC11 eq	2.89E-7	4.68E-8	2.44E-9	3.38E-7	2.16E-8	7.32E-8	1.11E-9	-2.32E-7	2.02E-7
AP	mol H+ eq	3.16E-2	1.16E-3	4.36E-4	3.32E-2	5.33E-4	3.09E-3	2.63E-5	-1.57E-2	2.12E-2
EP-fw	kg P eq	1.43E-4	1.67E-6	2.43E-6	1.47E-4	7.70E-7	1.55E-5	3.42E-8	-7.18E-5	9.20E-5
EP-m	kg N eq	5.79E-3	4.14E-4	4.58E-5	6.25E-3	1.91E-4	9.24E-4	1.73E-5	-3.11E-3	4.27E-3
EP-T	mol N eq	6.53E-2	4.56E-3	5.48E-4	7.04E-2	2.10E-3	1.02E-2	1.07E-4	-3.55E-2	4.73E-2
POCP	kg NMVOC eq	2.84E-2	1.30E-3	1.85E-4	2.99E-2	6.01E-4	3.18E-3	4.02E-5	-1.49E-2	1.88E-2
ADP-mm	kg Sb eq	1.13E-4	5.26E-6	5.81E-6	1.24E-4	2.42E-6	1.19E-5	2.65E-8	-3.74E-5	1.01E-4
ADP-f	MJ	2.77E+2	3.12E+0	4.01E-1	2.81E+2	1.44E+0	9.47E+0	8.07E-2	-1.45E+2	1.47E+2
WDP	m3 depriv.	5.36E+0	9.57E-3	1.54E-2	5.38E+0	4.41E-3	1.81E-1	3.84E-4	-2.52E+0	3.05E+0
PM	disease inc.	3.54E-7	1.83E-8	2.68E-9	3.75E-7	8.44E-9	4.99E-8	5.55E-10	-1.71E-7	2.62E-7
IR	kBq U-235 eq	1.82E-1	1.36E-2	3.01E-4	1.96E-1	6.28E-3	2.91E-2	3.75E-4	-8.79E-2	1.44E-1
ETP-fw	CTUe	6.25E+1	2.53E+0	3.57E+0	6.86E+1	1.17E+0	1.06E+1	6.77E-2	-3.40E+1	4.65E+1
HTP-c	CTUh	3.82E-9	9.01E-11	1.82E-10	4.09E-9	4.15E-11	1.34E-9	1.96E-12	-2.05E-9	3.42E-9
HTP-nc	CTUh	6.85E-8	3.02E-9	4.63E-9	7.61E-8	1.39E-9	1.59E-8	4.34E-11	-3.27E-8	6.08E-8
SQP	Pt	3.75E+2	2.67E+0	6.62E-1	3.79E+2	1.23E+0	7.55E+0	2.07E-1	-2.67E+2	1.21E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.55E+1	4.47E-2	7.10E+0	7.26E+1	2.06E-2	4.61E-1	3.14E-3	-4.19E+1	3.12E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.55E+1	4.47E-2	7.10E+0	7.26E+1	2.06E-2	4.61E-1	3.14E-3	-4.19E+1	3.12E+1
PENRE	MJ	2.97E+2	3.31E+0	4.27E-1	3.01E+2	1.52E+0	1.01E+1	8.56E-2	-1.56E+2	1.57E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.97E+2	3.31E+0	4.27E-1	3.01E+2	1.52E+0	1.01E+1	8.56E-2	-1.56E+2	1.57E+2
PET	MJ	3.63E+2	3.36E+0	7.53E+0	3.74E+2	1.55E+0	1.05E+1	8.87E-2	-1.98E+2	1.88E+2
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m3	8.43E-2	3.53E-4	4.31E-4	8.51E-2	1.62E-4	5.49E-3	9.96E-5	-3.98E-2	5.11E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	6.77E-5	7.98E-6	8.07E-11	7.57E-5	3.67E-6	1.56E-5	9.70E-8	-5.19E-5	4.31E-5
NHWD	kg	5.32E-1	1.93E-1	3.12E-4	7.25E-1	8.90E-2	4.79E-1	3.56E-1	-2.51E-1	1.40E+0
RWD	kg	1.78E-4	2.12E-5	3.24E-11	1.99E-4	9.77E-6	3.71E-5	5.27E-7	-8.58E-5	1.61E-4
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0

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